

**Federal State Autonomous Educational Institution of Higher Education  
"Peoples' Friendship University of Russia"**

**Institute of Environmental Engineering**

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(наименование основного учебного подразделения (ОУП)-разработчика ОП ВО)

**COURSE SYLLABUS**

**Региональная геоэкологическая оценка территорий / Regional geoeological  
assessment of territories**

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(наименование дисциплины/модуля)

**Recommended by the Methodological Council for the Education Field:**

**05.04.06 Ecology and nature management**

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(код и наименование направления подготовки/специальности)

**The discipline is mastered within the framework of the main professional higher  
education program:**

**УПРАВЛЕНИЕ ПРИРОДОПОЛЬЗОВАНИЕМ / NATURE MANAGEMENT**

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(наименование (профиль/специализация) ОП ВО)

## 1. COURSE GOALS

The purpose of the discipline is to get acquainted with modern theoretical basics and best international practice of a geochemical methods of environmental assessment and applications in the environmental protection and management.

## 2. LEARNING OUTCOMES

The mastering of the discipline " Региональная геоэкологическая оценка территорий / Regional geoeological assessment of territories " is aimed at the formation of the following competencies (parts of competencies) in students:

*Table 2.1. List of competencies formed by students during the development of the discipline (LEARNING OUTCOMES)*

Code	Competence	Indicators of competence achievement (within the framework of this discipline)
<b>ОПК-2</b> <b>GPC-2</b>	Способен использовать специальные и новые разделы экологии, геоэкологии и природопользования при решении научно-исследовательских и прикладных задач профессиональной деятельности. Able to use special and new sections of ecology, geoeology and nature management in solving research and applied tasks of professional activity	<b>ОПК-2.1</b> Знает основы экологии, геоэкологии, экономики природопользования и экономики замкнутого цикла, а также экологического менеджмента <b>GPC-2.1</b> Knows the basics of ecology, geoeology, environmental economics and closed-loop economics, as well as environmental management

## 3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline " Региональная геоэкологическая оценка территорий / Regional geoeological assessment of territories " refers to Compulsory Disciplines of the Higher Education Program.

Within the framework of the higher education program, students also master other disciplines and/or practices that contribute to expected learning outcomes of the discipline " Региональная геоэкологическая оценка территорий / Regional geoeological assessment of territories ".

*Table 3.1. List of Higher Education Program components that contribute to expected learning outcomes*

Code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
<b>ОПК-2</b> <b>GPC-2</b>	Способен использовать специальные и новые разделы экологии, геоэкологии и природопользования при решении научно-	Современные проблемы экологии и природопользования / Modern probems of ecology and nature manegement HSE менеджмент / HSE-management	Ландшафтное планирование / Landscape planning Производственная практика / Production practice

Code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
	исследовательских и прикладных задач профессиональной деятельности. Able to use special and new sections of ecology, geocology and nature management in solving research and applied tasks of professional activity	Методы мониторинга экологической безопасности природопользования / Methods of monitoring environmental safety of nature management Мониторинг природно-техногенных систем / Monitoring of natural and man-made systems	

#### 4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Workload of the course « Региональная геоэкологическая оценка территорий / Regional geocological assessment of territories » is 4 ECTS.

Table 4.1. Types of academic activities during the period of the HE program mastering

Вид учебной работы	TOTAL	Semesters			
		1	2	3	4
<i>Contact academic hours</i>	34		34		
Incl.:					
Lectures					
Lab work					
Seminars	34		34		
<i>Self-study</i>	83		83		
<i>Evaluation and assessment</i>	27		27		
<b>Total workload</b>	Ac.hours	<b>144</b>	<b>144</b>		
	ECTS	<b>4</b>	<b>4</b>		

#### 5. COURSE CONTENTS

Table 5.1. The content of the discipline (module) by type of academic work

Name of the discipline section	Content of the section (topics)	Type of academic activity*
Introduction and general provisions of geocological assessment	Subject and field of research of regional geocology. Regional conditions. An integrated approach to the assessment of geocological conditions.	Seminars
Geocological conditions of territories and factors of their formation.	Climatic, soil-plant, orohydrographic, geological factors. Their role in the formation of geocological conditions.	Seminars
Lithogenetic foundations of regional ecology	Engineering-geological approach as the basis of regional geocological assessment of the territory. Engineering and geological features of the territory of Russia. Characteristics of the shields of ancient and young platforms. Plates of ancient and young	Seminars

	platforms. Folded areas and areas of Alpine orogeny. Areas of the shelf and sea coasts. Changes in the geological environment of various territories and its resistance to man-made impacts.	
Geocological zoning of territories	The basic principles of typing conditions. Allocation of regions of different order, regions and districts. Geocological maps	Seminars
Urban geocology, as part of regional geocology	Foundations of urban structures. Methods of changing the properties of soil bases. Hydrogeology and hydrology of cities. Problems of water supply and wastewater in cities. Underground workings in cities. Urban soils. Construction and operation of the subway in various conditions. Geological processes and phenomena in cities. Monitoring of the natural urban environment. Recreational areas.	Seminars

## 6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

*Table 6.1. Classroom equipment and technology support requirements*

<b>Classroom for Academic Activity Type</b>	<b>CLASSROOM EQUIPMENT</b>	<b>Specialized learning, laboratory equipment, software and materials for the mastering the course</b>
Lecture	-	-
Seminars	Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, Stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), Skype	-
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

## 7. RECOMMENDED SOURCES FOR COURSE STUDIES

### *Main reading:*

1. Sahdev S., Singh R. B., Kumar M. (ed.). Geocology of Landscape Dynamics. – Springer, 2020. URL: <https://link.springer.com/content/pdf/10.1007/978-981-15-2097-6.pdf>

### *Additional sources:*

1. Nakashima S. et al. Geochemistry and the origin of life: From extraterrestrial processes, chemical evolution on earth, fossilized life's records, to natures of the extant life //Life. – 2018. – T. 8. – №. 4. – C. 39.

– 2. Deutsch W. J. Groundwater geochemistry: fundamentals and applications to contamination. – CRC press, 2020. URL: <https://www.taylorfrancis.com/books/mono/10.1201/9781003069942/groundwater-geochemistry-william-deutsch>

3. Pourret O. et al. Open Access publishing practice in geochemistry: overview of current state and look to the future //Heliyon. – 2020. – Т. 6. – №. 3. – С. e03551.

4. Zaburaeva K. S., Daukaev A. A. Strategy of Forming the Geoecological Framework of the Territory: on the Example of the Chechen Republic //International Symposium " Engineering and Earth Sciences: Applied and Fundamental Research" dedicated to the 85th anniversary of HI Ibragimov (ISEES 2019). – Atlantis Press, 2019. – С. 685-691.

#### *Internet-sources:*

1. Electronic library system of the RUDN and third-party electronic library systems, to which university students have access on the basis of concluded contracts:

- electronic library system of the RUDN University <http://lib.rudn.ru/MegaPro/Web>
- electronic library system «Университетская библиотека онлайн» <http://www.biblioclub.ru>
- electronic library system Юрайт <http://www.biblio-online.ru>
- electronic library system «Консультант студента» [www.studentlibrary.ru](http://www.studentlibrary.ru)
- electronic library system «Лань» <http://e.lanbook.com/>
- electronic library system «Троицкий мост»

2. Databases and search engines:

- electronic fund of legal and regulatory and technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
- .....

*Educational and methodological materials for independent work of students during the development of the discipline/ module \*:*

1. A course of lectures on the discipline " Региональная геоэкологическая оценка территорий / Regional geoecological assessment of territories ".

\* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the Telecommunication educational and Information System!

## **8. MID-TERM ASSESSMENT AND EVALUATION TOOLKIT**

Evaluation materials and a point-rating system\* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline " Региональная геоэкологическая оценка территорий / Regional geoecological assessment of territories " are presented in the Appendix to this Work Program of the discipline.

\* - evaluation toolkit and ranking system are formed on the basis of the requirements of the relevant local regulatory act of the RUDN (regulations / order).

**DEVELOPER:**

Professor of the ERNM  
Department

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Position, Department



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Signature

**Stanis E.V.**

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Name

**HEAD OF THE DEPARTMENT:**

Head of the Department of  
Environmental Safety and  
Product Quality Management

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Department



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Signature

**Savenkova E.V.**

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Name

**HAED OF THE HIGHER  
EDUCATION PROGRAM:**

Professor of the Department of  
Environmental Safety and  
Product Quality Management

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Position, Department



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Signature

**Redina M.M.**

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Name